

Commonwealth of Massachusetts
Department of Telecommunications and Energy
Fitchburg Gas and Electric Light Company
Docket No. D.T.E. 02-24/25
Responses to the Attorney General's Sixth Set of Information Requests

Request No. AG-6-4 (Gas)

Do you think that the relationship between degree days and weather-sensitive usage is perfectly or primarily linear through a full range of experienced degree days?

Response:

A number of studies performed for Massachusetts Gas utilities including Fitchburg has shown that degree days are excellent explanatory variable for the variation for daily send out. A Fitchburg analysis conducted in 1998 revealed that 96% of all load variation could be explained simply with degree day data. The same analyses revealed that the use of other non-linear terms could produce even more robust econometric specifications. In particular, degree days from the previous day and degree days squared both had statistically significant positive coefficient. From a practical standpoint, the squared term's coefficient indicates that loads rise more rapidly at extreme temperatures. Studies for other utilities have suggested that heating degree days developed using a base of 55 degrees Fahrenheit, rather than 65, can also be significant. This suggests that there is a non-linearity in the range from 0 to 10 heating degree days when using the conventional definition of 65 degrees as base. Please note that these studies address loads at the extremes-either very low heating degree levels or very high heating degree levels. At these extremes lows become non-linear. However, over the large majority of the range of actually experienced degree days, lows are very linear with heating degree days.

Person Responsible: James L. Harrison